**DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 70.28

# WELDING INSPECTION REPORT

**Resident Engineer:** Pursell, Gary
**Address:** 333 Burma Road
**City:** Oakland, CA 94607

**Report No:** WIR-006233
**Date Inspected:** 13-Apr-2009

**Project Name:** SAS Superstructure
**Prime Contractor:** American Bridge/Fluor Enterprises, a JV
**Contractor:** Japan Steel Works

**OSM Arrival Time:** 730
**OSM Departure Time:** 1630
**Location:** Muroran, Japan

**CWI Name:** Chung Fu Kuan

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| **Inspected CWI report:** | ☐ Yes | ☑ No | ☐ N/A | **CWI Present:** | ☑ Yes | ☐ No | |
| **Electrode to specification:** | ☑ Yes | ☐ No | ☐ N/A | **Rod Oven in Use:** | ☑ Yes | ☐ No | ☐ N/A |
| **Qualified Welders:** | ☑ Yes | ☐ No | ☐ N/A | **Weld Procedures Followed:** | ☑ Yes | ☐ No | ☐ N/A |
| **Approved Drawings:** | ☑ Yes | ☐ No | ☐ N/A | **Verified Joint Fit-up:** | ☐ Yes | ☑ No | ☐ N/A |
| | | | | **Approved WPS:** | ☑ Yes | ☐ No | ☐ N/A |
| | | | | **Delayed / Cancelled:** | ☐ Yes | ☑ No | ☐ N/A |

**Bridge No:** 34-0006
**Component:** Tower, Jacking, and Deviation Saddles

**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

Fabrication Shop #4
Post Weld Heat Treatment operation of Saddle: Tower Saddle Segment T1-1 (cast welded to steel section)
The QA Inspector observed that the post weld heat treatment operation was completed on tower saddle segment T1-1. The QA Inspector observed that the tower saddle is now being prepared to be moved to the blast area for cleaning prior to the NDT operation.

Machining of Saddle: West Deviation Saddle Segment W2-E2 (cast welded to steel section)
The QA Inspector observed that the machining operation is being performed on west deviation saddle segment W2-E2 in Machine Shop #2. The QA Inspector observed that the machining on inside of the trough was in-process at the end of the QA Inspectors' shift.

Machining of Saddle:West Deviation Saddle Segment W2-E1 (cast welded to steel section)
The QA Inspector observed that west deviation saddle segment W2-E1 is in Machine Shop #2 to have the lifting lugs machined off. The QA Inspector observed that no work was performed on this date.
Storage of Saddle: Tower Saddle Segment T1-3 (steel section.

The QA Inspector observed that tower saddle segment T1-3 (steel section) is located in Fabrication Shop #4 for

storage until tower saddle segment T1-3 (cast section) is ready for the fit-up operation. The QA Inspector observed that no work was performed on this date.

Grinding Operation of Saddle: West Deviation Saddle Segment W2-E3 (steel section)
The QA Inspector observed that JSW personnel completed the grinding operation on the rib plates and stem plate's edges (face of bevel and root face of double bevel prepared groove) of west deviation saddle W2-E3 (steel section). The QA Inspector observed that no work was performed on this date.

Grinding Operation of Saddle: West Deviation Saddle Segment W2-W1 (steel section)
The QA Inspector observed that JSW personnel were performing the grinding operation on west deviation saddle segment W2-W1 (steel section). The JSW personnel were grinding on the lands (root face dimension) of the double bevel groove weld joint areas that were not accessible to be machined so as to meet the mill to bear surface requirements. The QA Inspector observed that the grinding operation was in process at the end of the QA Inspectors' shift.

Welding operation on Saddle: Tower Saddle Segment T1-2 (cast being welded to steel section)
The QA Inspector observed that JSW personnel were repositioning tower saddle segment T1-2 in preparation to start the welding operation on the rib (cast section) to rib (steel section) partial and complete-joint penetration double bevel groove butt joint welds. The QA Inspector observed that the re-positioning of the saddle was in process at the end of the QA Inspectors' shift.

Temporary attachments on Base Plate of Saddle: West Deviation Saddle Segment W2-W2 (steel section)
The QA Inspector observed JSW welding personnel Mr. Sainokami (08-5141) welding temporary attachments per the FCAW process in the (3F) vertical position to the edge of the base plate and to the edge of the fixture to minimize the distortion of the base plate when the rib plate to base plate welding operation commences. The Quality Control Inspector Mr. Chung Fu Kuan informed the QA Inspector that JSW uses their in-house weld procedure specifications to perform the welding of the temporary attachments to the edge of the base plate. The QA Inspector observed that the welding of the temporary attachments to the base plate was in process at the end of the QA Inspectors' shift.

Grinding operation on Saddle: Tower Saddle Segment T1-3 (cast section)
The QA Inspector observed JSW personnel performing the grinding operation on the edges of the rib sections where the run off plates were placed during the buttering operation (overlay welding on square edge of rib and stem sections) The run off plates were removed initially by the air-carbon-arc operation. The QA Inspector observed that the grinding operation was completed by the end of the QA Inspectors' shift.

Foundry Shop:
NDT operation of Saddle: West Deviation Saddle Segment W2-W2 (cast section)
The QA Inspector observed NIS NDT Personnel preparing west deviation saddle segment W2-W2 for ultrasonic testing (UT)Inspection by (laying out) marking (300 x 300) mm grid lines on the inside and outside of the trough and also on the rib sections for the purpose of tracking and for guidance in scanning. The QA Inspector observed that the layout operation was completed by the end of the QA Inspectors' shift.

Cleaning operation of Saddle: East Saddle E2-E1

The QA Inspector observed that the shaping (scarfing) operation- (removal of cast material on the rough casting) performed on outside of the trough section and rib sections on east saddle E2-E1 was completed. The shaping operation is completed on both sides of east saddle E2-E1 and JSW personnel moved the east saddle to be blast cleaned prior to the start of the grinding operation of the shaped areas. The QA Inspector observed that no work was performed on this date.

Grinding operation of Saddle: East Saddle E2-W1 (cast section)

The QA Inspector observed that JSW personnel completed the grinding operation of the shaped areas on the outside of the east saddle E2-W1 (cast section). The JSW personnel performed the grinding operation to profile the shaped areas on the exterior of the trough section and stem section on the saddle to a smooth finish prior to the start of the NDT operation. The QA Inspector observed that no work was performed on this date.

Storage of Saddle: West Deviation Saddle Segment W2-W1 (cast section)

The QA Inspector observed that west deviation saddle W2-W1 (cast section) is located in the storage yard prior to being moved into fabrication shop #4. The QA Inspector observed that no work was performed on the saddle (cast section) on this date.

Grinding operation of Saddle: West Deviation Saddle Segment W2-W3 (cast section)

The QA Inspector observed JSW personnel completed the grinding operation on one side of the segment on the areas that had both major and minor weld repairs performed on the trough, stem and rib sections of west deviation saddle W2-W3 (cast section). The QA Inspector observed that no work was performed on this date.

Rough Machining operation: West Jacking Saddle (cast section)

The QA Inspector observed that the west jacking saddle (cast section) is located in Machine Shop #4 to have the rough machining of the base plate and end sections of the west jacking saddle. The QA Inspector observed that the machining was being performed on one end of the west jacking saddle on this date.

Buttering operation of Saddle: West Deviation Saddle Segment W2-E3 (cast section)

The QA Inspector observed JSW welding personnel Mr. T. Noboriyama (07-2711) performing the buttering operation-(overlay welding on cast material) on the end section of the trough on west deviation saddle segment W2-E3 (cast section) per the SMAW process in the horizontal position using (5) mm diameter E7016 electrode. The buttering operation is for the welding of temporary supports to the overlay areas for maintaining dimensions and for distortion control. The Quality Control Inspector Mr. Chung Fu Kuan informed the QA Inspector that JSW uses their in-house weld procedure specifications to perform the overlay welding. The QA Inspector observed that the buttering operation on the end section of the trough was completed by the end of the QA Inspectors' shift.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with applicable contract documents.

**Summary of Conversations:**

No significant conversations were reported on this date.

**Comments**

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, 510 385-5910, who represents the Office of Structural Materials for

your project.

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| **Inspected By:** | Peterson,Art | Quality Assurance Inspector |
| **Reviewed By:** | Lanz,Joe | QA Reviewer |